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December 29, 1999

U.S. Environmental Protection Agency
Region VII
901 North 5th Street
Kansas City, Kansas 66101

ATTENTION : Mr. Dan Wall

SUBJECT : Interim Measures Work Plan
Soil Piles on the Ford and Crossroad Properties
West Lake Landfill Operable Unit 1, Bridgeton, Missouri

Dear Mr. Wall,

On behalf of Cotter Corporation (N.S.L.), Laidlaw Waste Systems (Bridgeton), Inc., Rock Road Industries, Inc., and the United Sates Department of Energy (the "Respondents"), Engineering Management Support Inc. (EMSI) submits the attached Interim Measures Work Plan to address occurrences of radionuclides in surficial soil on properties owned by Ford Motor Credit Company (Ford) and Crossroad Properties, LLC. (Crossroad) located immediately west of Radiological Area 2 of the West Lake Landfill. If you have any questions or desire additional information related to this Work Plan or any other aspect of the project, please do not hesitate to contact me.

Sincerely,
ENGINEERING MANAGEMENT SUPPORT, Inc.

Paul V. Rosasco, P.E.

Distribution :

John Niffenegger - Sverdrup
Doug Borro - Allied Waste Industries, Inc.
Ward Herst - Herst & Associates, Inc.
Michael Hockley - Spencer Fane Britt & Browne
Steve Landau - Cotter Corporation
Charlotte Neitzel - Holme Roberts & Owen
James Wagoner II - U. S. Department of Energy
William Werner - The Stolar Partnership
W.E. Whitaker - Rock Road Industries

Interim Measures Work Plan

for

Investigative Derived Waste and Surface Soil Located on Properties Owned by Ford Motor Credit Company and Crossroad Properties, LLC

West Lake Landfill OU-1
Bridgeton, Missouri

Prepared for:

The West Lake Landfill OU-1 Respondents Group

December 29, 1999

Prepared by:

Engineering Management Support, Inc.
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1 INTRODUCTION

On behalf of Cotter Corporation (N.S.L.), Bridgeton Landfill, LLC., Rock Road Industries, Inc., and the United States Department of Energy (the "Respondents"), Engineering Management Support, Inc. (EMSI) has prepared this Interim Measures Work Plan to address occurrences of radionuclides in surficial soil on properties owned by Ford Motor Credit Company (Ford) and Crossroad Properties, LLC. (Crossroad) located immediately west of Radiological Area 2 of the West Lake Landfill. The Respondents, through EMSI, are currently involved in the completion of a Remedial Investigation/Feasibility Study (RI/FS) for Operable Unit 1 (OU-1) of the West Lake Landfill in Bridgeton, Missouri. Recent grading activities by others have resulted in removal of stabilizing vegetative cover and disturbance of soil containing radionuclides on the Ford and Crossroad properties. Removal of the vegetation and disturbance of the soil has resulted in a potential for wind or water erosion of the soil and potential transport to unimpacted areas.

This work plan includes a proposal to manage surficial soils containing radionuclides that were recently scraped from the Ford and Crossroad properties and piled in a berm adjacent to the northern boundary of Area 2 of OU-1 of the West Lake Landfill. EMSI is also proposing to conduct additional soil sampling of the Ford and Crossroad properties to characterize the current condition of these properties. In addition to addressing the soil piles on the Ford and Crossroad properties, EMSI is also proposing to consolidate soil-boring cuttings piles from OU-1 RI/FS field investigations into Area 2. Both the cuttings materials and the soil piles will be consolidated at a single location in Area 2.

The specific activities addressed by this work plan include the following:

1. Obtaining access to the Ford and Crossroad properties for the purposes of removing the soil piles and obtaining additional surface soil samples;

2. Collecting various soil-boring cuttings piles present in OU-1 Areas 1 and 2 resulting from performance of the RI/FS field investigations and consolidating the materials from these piles in one location on Area 2;

3. Re-locating the soil piles resulting from the grading activities on the Ford and Crossroad properties onto the surface of Area 2 above the consolidated soil-boring cuttings;

4. Re-characterizing surficial soil remaining on the Ford and Crossroad properties for radiological constituents; and

5. Final grading and revegetation of the location on Area 2 where the soil-boring cuttings and relocated soils are placed.

The remaining sections of this document present background information on the soil conditions at the Ford and Crossroad properties, a plan to conduct additional characterization on the Ford and Crossroad properties, an excavation and consolidation plan, and a schedule for implementation.

1.1 Background

As illustrated on Figure 1, the Ford and Crossroad properties are located to the west of Area 2 immediately adjacent to the toe of the landfill berm. Long term erosion of impacted soils present at the surface of Area 2 and subsequent transport in conjunction with precipitation runoff have resulted in transport of some of these materials onto the surface of the Ford and Crossroad properties. In addition, a small section of the slope of the landfill berm was subjected to significant erosion resulting in transport of landfill berm soils onto the Ford and Crossroad properties. Historically, the Ford and Crossroad properties had been used for agricultural purposes. Tilling of the soil on these properties may have resulted in further transport and homogenization of these soils.

Over the past several years, Ford subdivided and sold its properties to the west of the West Lake Landfill, and the property has been developed into Crossroads Industrial Park. Crossroad Industrial Park consists of light industrial uses, such as warehouses and sales and rental of heavy equipment. In 1997, Ford sold its remaining tracts of real property in the area to Crossroad, exclusive of the 1.78 acre buffer zone which has been retained by Ford and is situated immediately adjacent to the western edge of Radiological Area 2 of the West Lake Landfill (the Ford Buffer). (Terms are being finalized pursuant to which Ford would convey and Rock Road Industries, Inc. at the request of the other members of the Respondent Group, would accept title to the Ford Buffer.) The property Ford sold to Crossroad included the 9.40 acre parcel known as Lot 2A of Crossroads Industrial Park. Crossroad split Lot 2A into Lot 2A1 (consisting of 5.82 acres) and Lot 2A2 (consisting of 3.58 acres). As presented in the draft RI Report (EMSI, 1998), the 3.58 acre parcel of land now known as Lot 2A2 was found to contain areas of low-level radiologically-impacted surface soils; the area now known as Lot 2A1 appears not to have been impacted by soils containing radioactive constituents. In 1998, Crossroad sold Lot 2A1 to AAA Trailer which uses the property as a trucking terminal. The Respondents understand that AAA Trailer holds an option to purchase part of Lot 2A2, and proposes to cover this additional property with an asphalt parking lot to provide an expanded area for tractor-trailer parking. Negotiations are currently ongoing pursuant to which Rock Road Industries, Inc., at the request of the other Respondents, would accept title to the remainder of Lot 2A2 to assist the investigation and remedy of Operable Unit 1.

The majority of the impacted soils on the Ford and Crossroad properties are contained within the current 1.78-acre buffer reflected on Figure 2. As indicated above, some of the samples collected for Lot 2A2 were found to contain additional low-level radiologically-impacted soils. Samples obtained by EMSI from the upper 3-inches of soil in these areas detected slightly elevated levels of radionuclides. Samples obtained from depths of 12 to

24-inches in these areas did not detect elevated levels of radionuclides. Based on these sampling results and the assumed mechanisms of transport, EMSI concluded that the radionuclide occurrences were likely limited to approximately the uppermost 6-inches of soil in this area.

On November 18, 1999, Herst & Associates, Inc. (Herst, 1999) performed a site walkover of the Ford and Crossroad properties and observed that the upper 2 to 6-inches of soil material had been scraped from the Ford Buffer and Lot 2A2 and pushed up against the boundary fence separating the Ford and Crossroad properties from the West Lake Landfill (Figure 3). A minor amount of scraped material was also mounded along the northern portion of the Ford and Crossroad properties. Approximately 10 to 12 inches of gravel had been placed over the eastern portion of the Property (Lot 2A1 and a small component of Lot 2A2), while the remaining disturbed soils were left exposed. The dates during which the excavation occurred are not known.

The excavation was performed despite signage warning of the presence of radioactive contamination. Numerous sets of tire tracks were also observed on the excavated property, including tracks indicating that vehicles have been driven directly past a radioactive contamination warning sign. It was noted by Herst & Associates, Inc. (Herst, 1999) that the excavation process has "increased the potential for windblown particles to exit the property", and the mounded material is "subject to erosion potential due to runoff from precipitation".

EPA was notified on November 24, 1999, via telephone conversation between Michael Hockley on behalf of the Respondents and David Hoefer of EPA that an unknown party had initiated clearing and grubbing activities on property adjacent to the West Lake landfill. A written notification of this discovery was mailed to EPA on December 2, 1999 (Hockley, 1999).

Based on the potential for wind or precipitation runoff-induced erosion and transport of these soils, the Respondents through this work plan are proposing to conduct, subject to EPA approval, a time-critical removal action to retrieve and relocate the soil piles to prevent potential offsite transport.

1.2 Purpose and Scope

The purpose of this work plan is to present proposed activities to retrieve and control radionuclides in soil that has been scraped and bermed on the Ford and Crossroad properties and to characterize the current conditions of the Ford and Crossroad properties. Specifically, the Respondents propose to excavate the soil piles resulting from the recent regrading of the Ford and Crossroad properties and convey and consolidate these materials in a cell on the surface of Area 2. Upon completion of the excavation activities the surface of the cell will be re-vegetated to reduce the potential for windblown or runoff transport of these soils.

The scope of this work includes the following activities:

1. Obtaining access from Ford and Crossroad to allow for removal of the soil piles;

2. Selecting a location for a "consolidation cell" on the surface of Area 2 where surficial soil graded and placed in a berm and pile on the Ford and Crossroad properties and soil-boring cuttings from OU-1 RI/FS field investigations will be placed;

3. Clearing/grubbing the surface of the consolidation cell;

4. Collecting the soil-boring cuttings and placing them in the cell;

5. Collecting and consolidating onto the surface of Area 2 the surficial soil which was graded and placed in a berm and pile on the Ford and Crossroad properties;

6. Regrading and revegetating the consolidated soil;

7. Completing additional radiological characterization of surficial soils located on the Ford and Crossroad properties; and

8. Preparing a construction completion report.

Specific information regarding each of these activities is presented below.

2 ADDITIONAL SITE CHARACTERIZATION

This section develops objectives for additional site characterization and presents sampling and analytical details.

2.1 Site Access

Prior to conducting any of the proposed activities, an agreement will need to be reached with Ford and Crossroad to allow for access to remove the soil piles and collect the additional soil samples. The prior access agreement between Ford and the Respondents only provided for sample collection and would need to be renewed and modified to allow for removal of the soil pile on the Ford property. The Respondents have never had any form of access agreement with Crossroad and such an agreement would need to be developed prior to initiating any of the work. If it is determined to be necessary to transport the soil along the Old St. Charles Rock Road alignment, an access agreement

would also need to be developed with the Earth City Flood Control District, the current owners of the Old St. Charles Rock Road alignment.

2.1 Additional Site Characterization

Analytical results for the soil samples previously obtained from the Ford and Crossroad properties indicate that radiological activities greater than background levels were present in the surficial samples (0 to 6 or 0 to 3 inches) obtained from several locations on these properties (EMSI, 1998). Results of evaluations performed as part of the Baseline Risk Assessment (Auxier, 1998) indicated that the levels of radioactive materials present on the Ford and Crossroad properties did not pose an unacceptable risk to commercial and industrial uses. Based on this historical analytical information and the recent excavation of the Ford and Crossroad properties and resultant removal of the top 2 to 6 inches of surficial soils, it is likely that much if not all of the surface soil containing radionuclides has been removed. Surficial soil sampling will be conducted to characterize the current conditions of the surface soils on these properties.

2.2 Sampling and Analysis Details

Confirmation soil samples are proposed to be collected from the following locations, as illustrated on Figure 3.

- Prior sampling locations WL-206, FP-1, FP-4, FP-5, and FP-8; and
- New sampling locations FP-9, FP-10, and FP-11 following removal of stockpiled and underlying surficial soils.

Grab samples will be collected from a depth of between 0 to 6 inches beneath the existing exposed soil surface and the final exposed soil following removal of stockpiled and underlying surficial soils, as appropriate.

All samples will be analyzed for the radionuclide suite used during the RI/FS investigation. All samples will be collected using the protocols contained in the RI/FS Work Plan (EMSI, 1997 and McLaren/Hart, 1994). The analytical methods contained in the approved RI/FS Work Plan will also be used with the exception of thorium-230. The analytical procedure for thorium was modified from the procedure contained in the RI/FS Work Plan during the RI/FS field program. The modified procedure instituted during the RI/FS field program will be used.

3 EXCAVATION PLAN

The proposed excavation activities include relocating soil piles from the Ford and Crossroad properties to a "consolidation cell" located on the surface of Area 2. The proposed excavation activities also include collecting the various soil-boring cuttings piles present in Areas 1 and 2 resulting from performance of RI/FS field investigations and consolidating the materials from these piles along with the surficial soils from the Ford and Crossroad properties at the consolidation cell on Area 2. The excavation plan presented in this section discusses the configuration and location of the consolidation cell, cell construction and material excavation/placement, and preparation of a construction completion report.

3.1 Consolidation Cell Configuration and Location

The excavated soil from the Ford and Crossroad properties and RI/FS soil-borings cuttings will be transferred to and consolidated at a location on Area 2. Based on the estimated volume of the soil piles of approximately 750 cubic yards (Herst, 1999) and assuming that an additional 6-inches of material will be excavated from below the approximately 1,250 ft^2 footprint of the piles, the total volume of soil to be removed is estimated to be approximately 800 cubic yards. The volume of the soil boring cuttings piles is estimated to be between approximately 180 and 300 yards. Therefore, the total volume of material to be placed in the cell in Area 2 is approximately 1,000 cubic yards. Assuming a nominal placed thickness of up to 2.5 feet, an area of approximately 10,000 square feet (approximately 0.25 acres) will be necessary for placement of the cuttings and soil in Area 2. The 2.5-foot thickness was chosen to minimize the cell footprint while producing a cell height with a minimal elevation to facilitate revegetation and maintenance. For purposes of the following evaluations, the configuration of the cell has been assumed based on a square cell with 100-foot side lengths. The actual configuration of the cell will be engineered in the field based on the local topographic conditions and the final volumes of soil material to be placed in the cell.

EMSI proposes that the cell be constructed in the northern part of Area 2 where radiologically affected materials are already present at the surface (Figure 4). The proposed area for the cell is relatively small in comparison to the surficial expression of the radiological materials in Area 2. Therefore, it will be relatively easy to delineate an appropriate location for the cell within the affected area.

The proposed location of the cell has been identified based on as many of the following criteria as possible (listed in order of importance):

- The cell is placed outside the boundaries of any region within Area 2 where ponded water is present for prolonged periods;

- The cell is placed in an area with an existing slope that facilitates runoff without resulting in enhanced erosion (nominally 1 to 3 percent);

- The cell is placed in an area where runoff from the cell location and immediately surrounding area will drain to the interior low spots of Area 2 rather than off site;

- The cell is placed in an area where the uphill boundaries of the cell will be blended into the existing topography to minimize side slope surface area and the resulting potential for enhanced erosion;

- The cell is placed in an area with limited existing vegetation to provide additional erosion protection in Area 2 through revegetation of the cell; and

- The cell is placed in a location that is easily accessible for both construction and future maintenance activities, if any.

In-place configuration of the consolidation cell will be based on the actual volume of materials excavated from the Ford and Crossroad properties and the RI/FS soil-borings cuttings. The currently anticipated dimensions are provided above.

3.2 Cell Construction and Material Excavation and Placement

A Health and Safety Plan for the proposed activities will be prepared prior to initiation of site construction activities. The Plan will include descriptions of equipment and personnel to be employed and decontamination procedures.

Prior to placement of any materials in Area 2, the area of the consolidation cell will be cleared and grubbed of vegetation and surficial debris. The materials contained in the various soil boring cuttings piles in Areas 1 and 2 will then be collected, transported to the cell, and consolidated in the cell.

The following sequence of construction activities will then occur:

- Soil piles on the Ford and Crossroad properties will be excavated to an anticipated depth of 6 inches beneath the preexisting ground surface using a front-end loader and/or bulldozer, and placed in off-road trucks using a front-end loader. It is anticipated that the trucks will use a temporary road cleared through the existing vegetation on the face of the landfill berm located immediately to the east of the Ford and Crossroad properties (to haul the soil directly to Area 2). Alternatively, the Old St. Charles Rock Road alignment may be used to to haul the materials to Area 2 via the gated southeastern entrance to the landfill. The bed of each truck will be covered while traversing the offsite roads or through portions of the landfill outside of Areas 1 and 2.

- Transported soils from the Ford and Crossroad properties will be placed over the cuttings materials in the consolidation cell and spread in one-foot lifts by a dozer. The first two lifts will be compacted by making at least three passes with the dozer over the soils. The final lift will not be compacted to allow for revegetation efforts. However, the final lift will be graded to blend with the surrounding topography, with maximum sideslopes of 5H:1V, and contoured to match existing drainage patterns (see grading objectives below).

- The top and sides of the cell will be revegetated with native grasses during the subsequent growing season.

- The corners of the cell will be staked and surveyed upon completion of the final grading and contouring activities.

During placement activities, the placed soils will be contoured to promote diversion of run-on waters and to minimize the potential for erosion of the place soils by precipitation runoff. The grading objectives will require the upper portion of the cell to drain with a minimum slope of 1%. The side-slopes of the cell will be graded to a maximum 5H:1V slope to minimize the potential for erosion. Upon completion of the grading and contouring, the surface of the cell will be vegetated with native grasses to further reduce the potential for erosion, as discussed above.

Reclamation of the Ford property and Lot 2A2 that may be transferred to a Respondent to give the Respondents control of this property and provide additional buffer zone will involve re-vegetating exposed soil with native grasses. It is anticipated that seeding will occur during the springtime when germination can best occur.

3.3 Construction Completion Report

Upon completion of all field activities, a construction completion report will be prepared and submitted to EPA. The construction completion report will include the following information:

1. Narrative description of the activities conducted;

2. Survey information and record drawing(s) of the consolidation cell;

3. Summaries of the areal extent and volumes of materials removed from the Ford and Crossroad properties;

4. Results of the sampling and analysis efforts; and

5. Discussions of any unanticipated conditions encountered or any field changes made to the program.

4 IMPLEMENTATION SCHEDULE

It is anticipated that the measures discussed in this proposal can be completed in accordance with the following schedule:

Obtain bids from qualified contractors and obtain site access	Within 21 days of approval of this proposal from EPA
Select preferred contractor	Within 14 days of receipt and review of contractor bids
Mobilize equipment, prepare consolidation cell, relocate soil-boring cuttings, relocate Ford and Crossroad properties soils	Within 14 days of selection of the preferred contractor (assuming necessary site access has been obtained)
Complete final grading of consolidation cell	Upon completion of cuttings and soil consolidation activities
Conduct additional surface soil sampling on Ford and Crossroad properties	Upon completion of excavation of the soil piles on the Ford and Crossroad properties
Submit Construction Completion Report	Within 30 days of receipt of additional soil sampling results

5 REFERENCES

Auxier and Associates, 1998, Draft Baseline Risk Assessment, West Lake Landfill, Operable Unit 1, April 22, 1998.

Engineering Management Support, Inc., 1997, Amended Sampling and Analysis Plan, West Lake Landfill, Operable Unit 1, Prepared for West Lake OU-1 Respondents Group. February

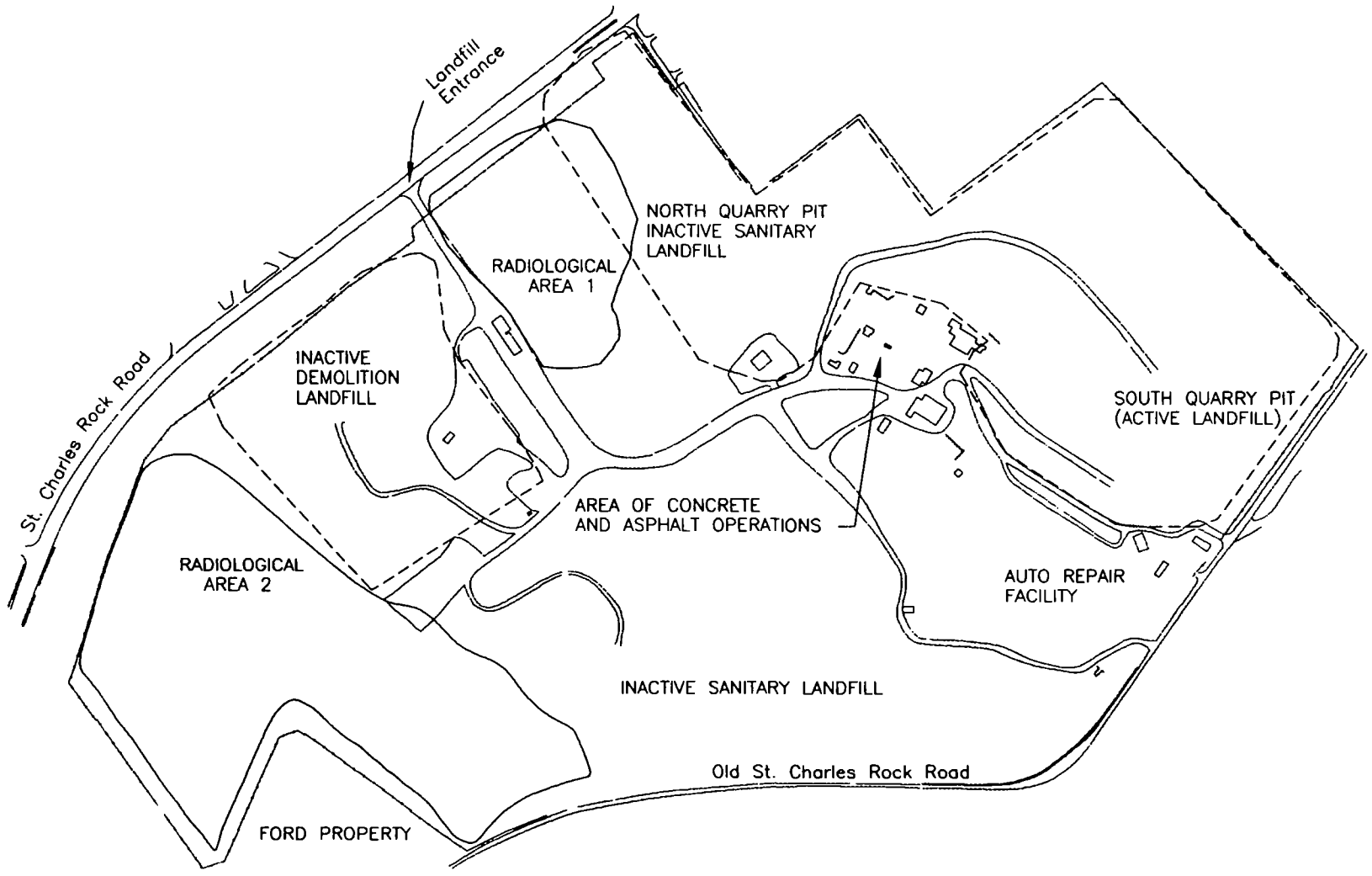
Engineering Management Support, Inc., 1998, Draft Remedial Investigation Report, West Lake Landfill, Operable Unit 1, Prepared for West Lake OU-1 Respondents Group. March

Herst & Associates, Inc., 1999, Letter Report to Mr. Michael Hockley of Spencer, Fane, Britt & Browne entitled "November 18, 1999 Site Walkover, Ford and Crossroad properties Area, West Lake Landfill Operable Unit 1 RI/FS", prepared by Ward E. Herst. December 1.

Hockley, Michael, D., 1999, Letter to David Hoefer, U.S. EPA, Re: West Lake Landfill Superfund Site, December 2, 1999.

McLaren/Hart, 1994, RI/FS Work Plan for the West Lake Site, Bridgeton, Missouri, August 15.

WL-SITE



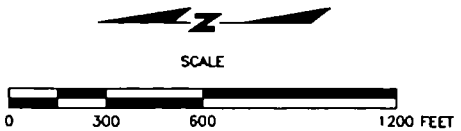


Figure 1

Site Location Map

West Lake Landfill OU-1

EMSI Engineering Management Support, Inc.

WL-CCFP

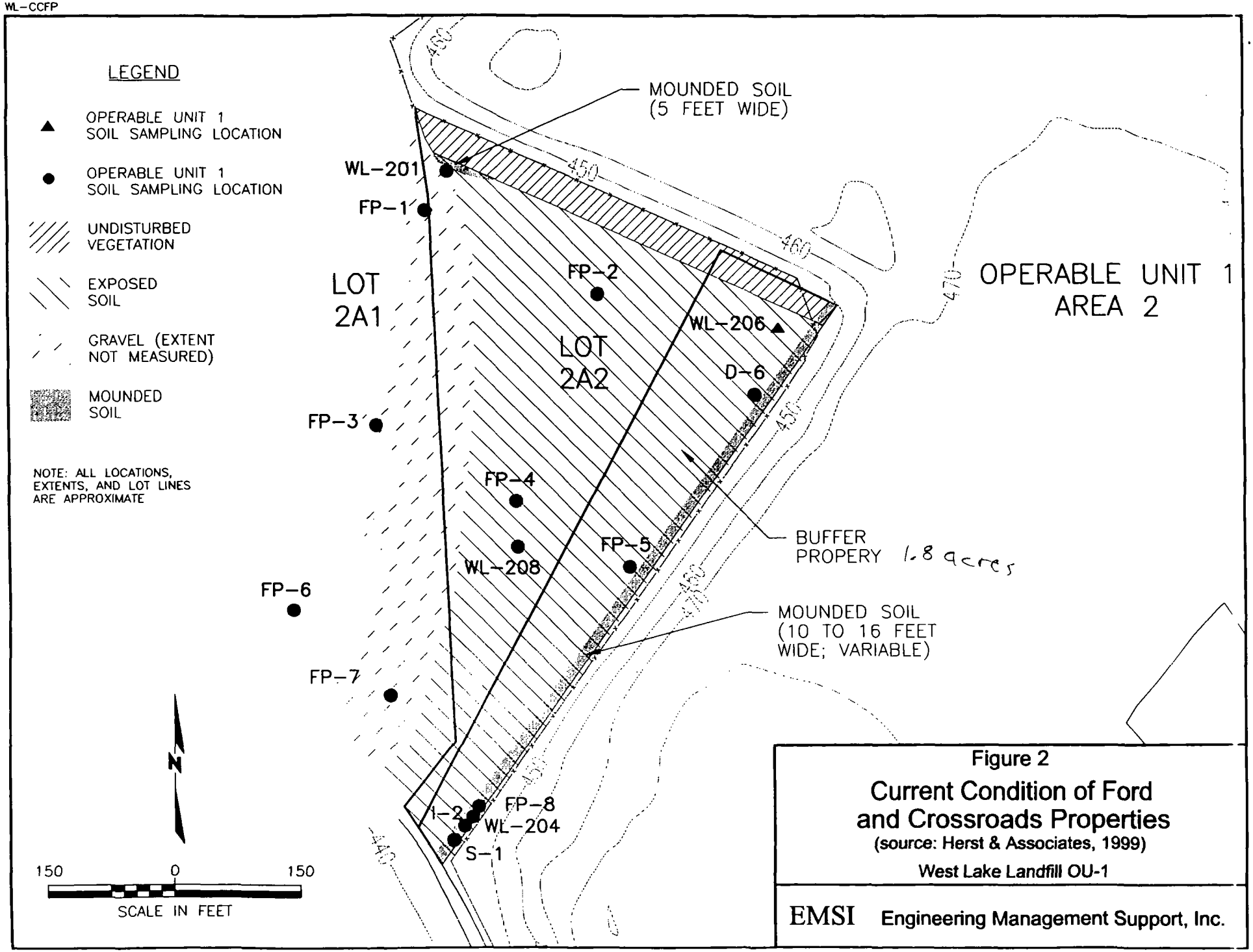


Figure 2

Current Condition of Ford and Crossroads Properties

(source: Herst & Associates, 1999)

West Lake Landfill OU-1

EMSI Engineering Management Support, Inc.

WL-PSSL

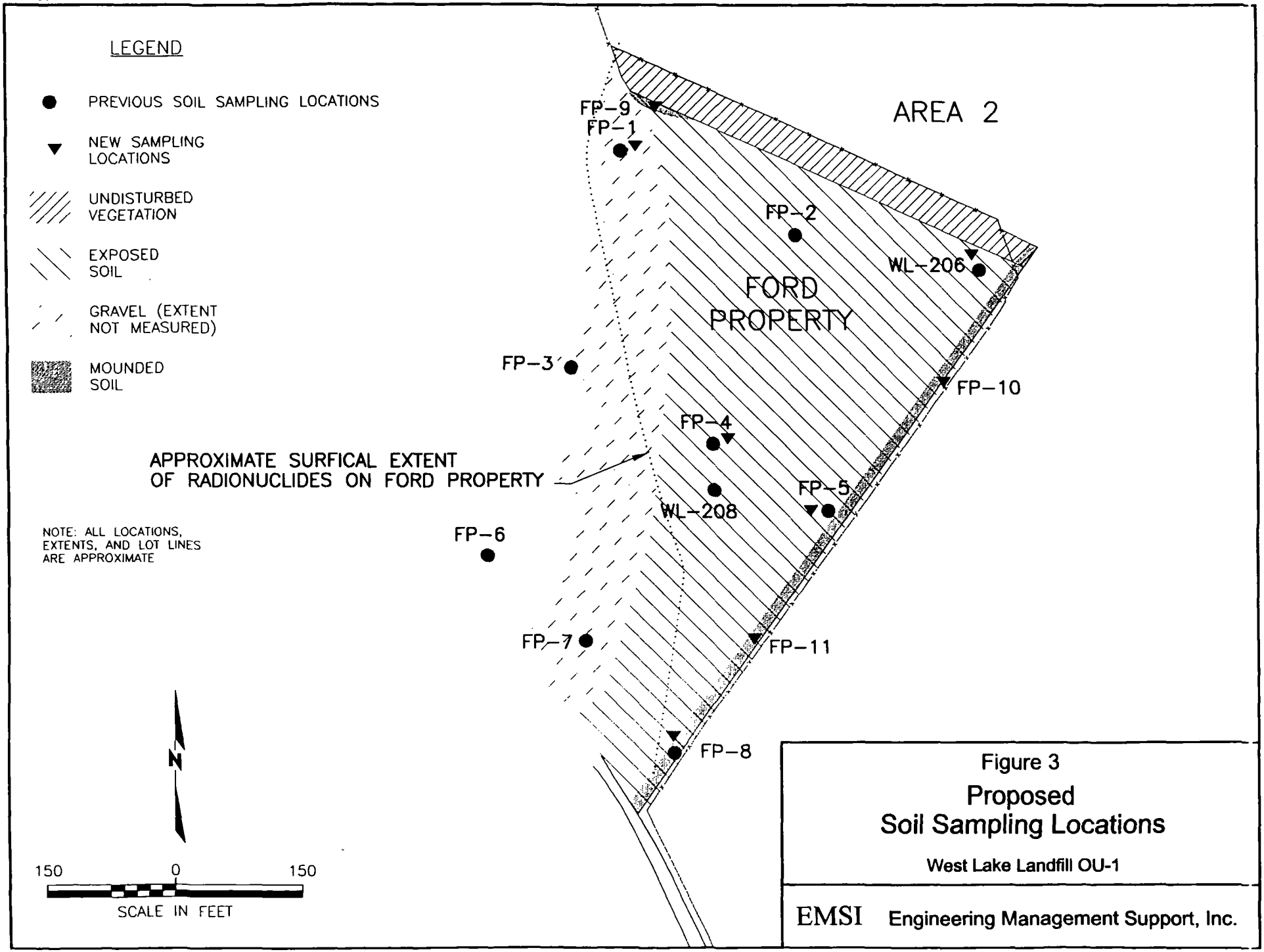


Figure 3

Proposed Soil Sampling Locations

West Lake Landfill OU-1

EMSI Engineering Management Support, Inc.

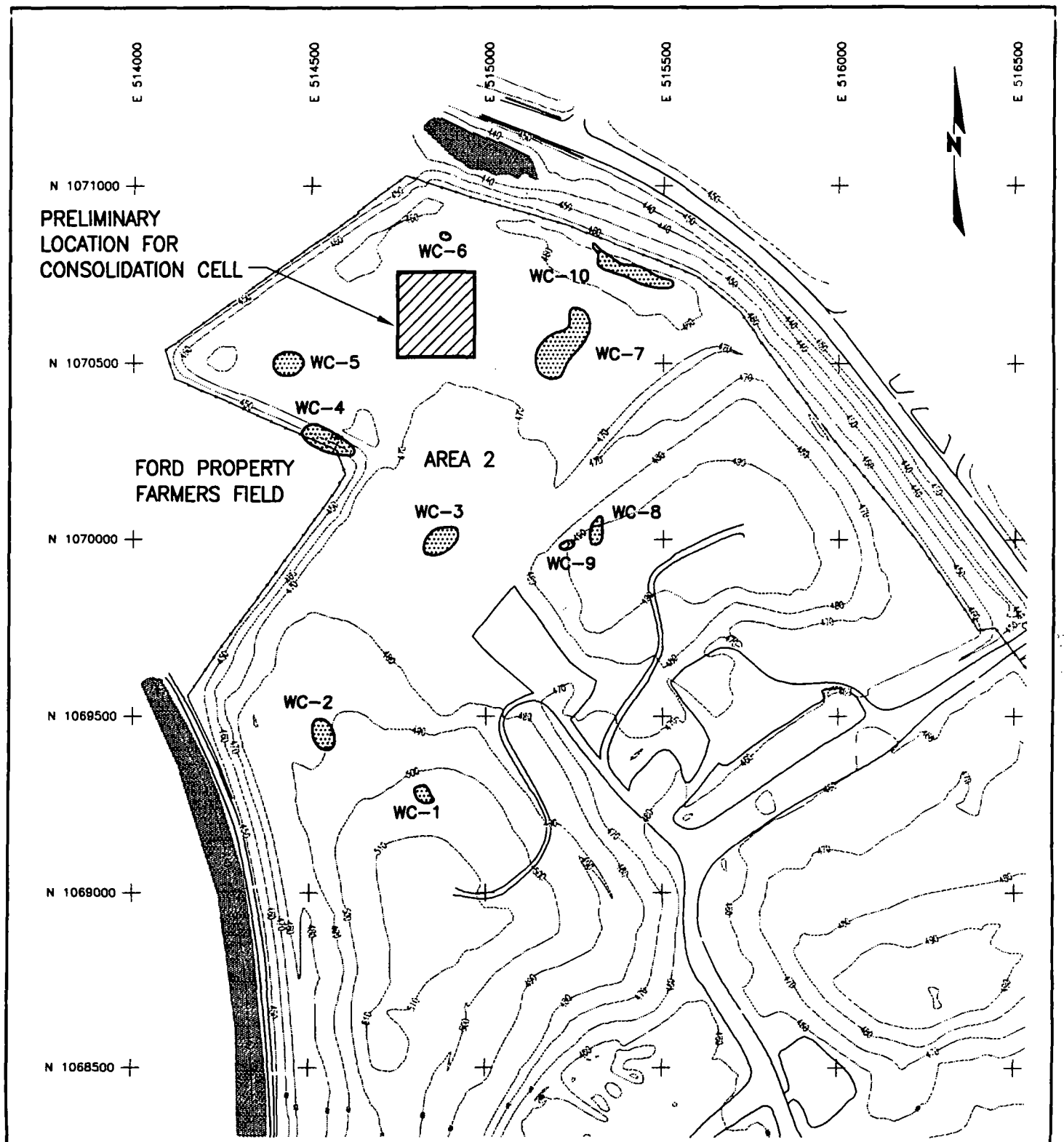


Figure 4

Proposed Location for Soil and Cuttings Consolidation Cell

West Lake Landfill OU-1

EMSI Engineering Management Support, Inc.

WL-PLSC